

RED BRIDGE
(State Bridge No. 809)
Spanning Broadkill River on
Union Street (SR5), 0.9
miles south of the intersection
of State Road 16 and State Road 5
Milton
Sussex County
Delaware

HAER No. DE-30

HAER
DEL
3-MILT,
2-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Northeast Region
U.S. Custom House
200 Chestnut Street
Philadelphia, PA 19106

HAER
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HISTORIC AMERICAN ENGINEERING RECORD

RED BRIDGE
(State Bridge No. 809)

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Location: Spanning the Broadkill River on Union Street (SR 5), 0.9 miles south of the intersection of State Road 16 and State Road 5. Located in Milton, Sussex County, Delaware.

USGA Quad: Milton, Del.
UTM 18.530804.2834370

Date of
Construction: 1916

Present Owner: Delaware Department of Transportation

Present Use: Riverine crossing for vehicles and pedestrians

Significance: The bridge is located in the Milton Historic District. Although one elevation has been altered, the structure in its entirety appears to be in character with its surrounding environment and is a contributing element in the historic district.

Project
Information: This document was undertaken in June, 1991 in accordance with the Memorandum of Agreement by the Federal Highway Administration as a mitigative measure prior to replacement of the bridge.

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Environmental Planner
Location & Environmental Studies
Department of Transportation
Dover, DE 19003

RED BRIDGE (State Bridge No. 809)
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Constructed as a riverine crossing elimination, the Red Bridge carries Union Street (SR 5) over the Broadkill River. This single span, highly embellished example of a concrete encased steel girder and concrete slab bridge is significant because of its locational history and architectural treatment.

Delaware Department of Transportation records state that the Red Bridge was originally built in 1916 by authority of the Sussex County Levy Court, under Contract CS 21. Morgan T. Gum was the county engineer and Alfred H. Megee the road commissioner. A plaque on the bridge parapet contains this information. The bridge was constructed as part of a project to build a road between Milton and the village of Harbeson. Original plan drawings do not exist. Drawings on file at the Delaware Department of Transportation document the most current details of design, materials, and construction for this structure. These drawings, approved and dated September 21, 1951 indicate that the bridge was reconstructed and designed under Delaware State Highway Department Contract Number 769. The drawings for the structure note that it was designed in accordance with American Association of Highway Officials (AASHO) specifications of 1949 for a H-15 loading (AASHO was the predecessor to today's AASHTO).

Work under Contract 769 in 1951 included widening and replacement to the downstream railing. The railing was replaced with a concrete parapet which reflects the shape of the original metal railing.

The present appearance of the bridge shows signs of structural deterioration. The entire substructure displays evidence of severe deterioration.

Red Bridge, better known as State Highway Bridge Number 809, is a concrete encased steel girder bridge located in the Milton Historic District. The single span bridge is 24'-7" long and is 34'-0" wide carrying two lanes of traffic and a sidewalk on each side. The superstructure consists of concrete abutments and straight, rubble wing walls. The bridge has been widened on the downstream elevation, but its original configuration is evident on the upstream, where the original stone parapet and metal lattice railing remain.

As it was originally constructed in 1916, the Red Bridge represents one of the earliest structures of its type surveyed in Delaware. It predates the creation of the Delaware State Highway Department, and exemplifies the road construction and improvement activities undertaken by the Sussex County Levy Court in the period before state and federal assistance became available in significant amounts for these purposes.

During this period, county road and bridge construction was financed by local real estate taxes; especially in rural areas, where property values were lower than in the cities and suburbs, this funding proved insufficient to maintain the roads as motor traffic steadily increased. By 1917, rural Sussex County had only managed to underwrite 35 miles of macadam-surfaced roads. The construction of Red Bridge during this period, as part of a road building project which encompassed approximately four miles, represented a significant undertaking for the county at this time.

The passage of the Federal Aid Highway Act in 1916 set in motion a series of changes which would greatly accelerate the pace of road improvement in Delaware. The Act provided Federal Matching funds to states for road construction up to 50% of cost or \$10,000 per mile, and required that states set up an authoritative highway department with a professional staff. In response, the General Assembly passed the Highway Act of 1917, creating the Delaware State Highway Department.

The road building program was further stimulated in 1919, when the State Aid Road Law enabled counties to issue bonds to match state funds. The 1919 law enabled each of Delaware's three counties to receive \$250,000 annually in matching funds for road and bridge construction. Sussex County was to take full advantage of this program, accepting \$250,000, matched with a bond issue, to construct 58 miles of road.

The Red Bridge thus represents the construction activities of the Sussex County Levy Court in the period before significant financial assistance became available.

The Red Bridge is an example of an embellished concrete bridge; most concrete bridges surveyed in Delaware are single spans with little ornamentation. Steel girder and concrete slab bridges, like the small Delaware bridges inventoried, have been widely built in the U.S. for highway use throughout the twentieth century. As a class, these commonly built bridge types represent an economical and expedient engineering solution which found broad application across the nation. Generally, their treatment was handled in a formulaic manner, presenting a standardized and uninspired impression, rather than an aesthetic statement. Embellishment, when presented at all, was limited to simple geometric designs breaking up the visual mass of the solid concrete parapets. The ubiquitousness of steel girder and concrete slab bridges, and their noninnovative technological and aesthetic character, prompted engineering historian Carl Condit to observe the great number of these "commonplace structures" with "design and appearance so nearly uniform" made it difficult to select noteworthy examples.

The results of the historic bridge survey in Delaware confirm the widely built numbers of simple, small spans. This commonly built type exemplifies the continuing expansion and improvement of the road network under the auspices of the Delaware State Highway Department.

As mentioned, the Red Bridge is located in the Milton Historic District, which is significant for its early associations with navigation on the Broadkill River and is characterized by buildings reflecting a variety of architectural styles representing periods from the mid-nineteenth through early twentieth centuries.

HISTORIC AMERICAN ENGINEERING RECORD

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Plans on file at Delaware DOT: Contract #769

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RED BRIDGE

BUILT 1916

SUSSEX COUNTY LEVY COURT
MORGAN T. GUM, ENGR.
ALFRED H. MEGEE, COMM.

